X-GAL

Cat. No.: HY-15934

CAS No.: 7240-90-6

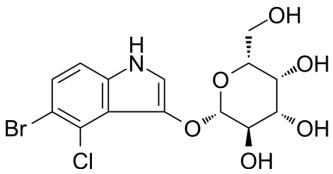
Molecular Formula: $C_{14}H_{15}BrClNO_6$

Molecular Weight: 408.63

Target: Fluorescent Dye; Glucosidase

Pathway: Others; Metabolic Enzyme/Protease

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMF : 200 mg/mL (489.44 mM; Need ultrasonic)
DMSO : 100 mg/mL (244.72 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4472 mL	12.2360 mL	24.4720 mL
5 mM	0.4894 mL	2.4472 mL	4.8944 mL
10 mM	0.2447 mL	1.2236 mL	2.4472 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (5.09 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.09 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.09 mM); Clear solution
4. Add each solvent one by one: 10% DMF >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2 mg/mL (4.89 mM); Clear solution
5. Add each solvent one by one: 10% DMF >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2 mg/mL (4.89 mM); Clear solution
6. Add each solvent one by one: 10% DMF >> 90% corn oil
   Solubility: ≥ 2 mg/mL (4.89 mM); Clear solution

BIOLOGICAL ACTIVITY

Description X-GAL (BCIG) is a widely used chromogenic β-galactosidase substrate. X-GAL is a colorless compound until cleaved by β-

	galactosidase, at which point X-GAL turns to an insoluble and detectable blue compound, making X-GAL particularly useful in techniques such as blue-white screening for cloning in bacteria. X-GAL can also be used for detection of β-galactosidase activity[1][2].
In Vitro	When the cells (HUVEC for example) were grown in dishes to 80% confluence, 50 μmol/L H_2O_2 were added in the medium for 12 h. Subsequently, cells were harvested with trypsin/EDTA and washed three times with PBS and further fixed with 4% formaldehyde for 10 min. As control, cells without H_2O_2 treatment were prepared in the same way. Cells were stained with by X-gal at 37 ⊠[2]. The intestinal tissue was excised and cut longitudinally. After the intestinal content was rinsed off with phosphate buffer solution, the intestinal tissue was placed with the inner surface facing up on the slide. Next, a single blue colony containing β-gal (E. coli DH5α containing pUC18) was dilution in 100 μL PBS and then 10 μL were added in the tissue. After incubation for 1 h, the tissues were washed with PBS solution. As control, tissues without the blue colony were prepared in the same way. All tissues were fixed with 4% formaldehyde for 10 min and were further stained by adding X-gal at 37 ⊠[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Aging. 2023 Feb 2.

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REFERENCES

[1]. Sanchez-Ramos J, et al. The X-gal caution in neural transplantation studies. Cell Transplant. 2000 Sep-Oct;9(5):657-67.

[2]. Li S, et al. In-situ SERS readout strategy to improve the reliability of beta-galactosidase activity assay based on X-gal staining in shortening incubation times. Talanta. 2021 Nov 1;234:122689.

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